MANEUVER CONTROL SYSTEM (MCS)

Army ACAT ID Program

Total Number of Systems:	3,156
Total Program Cost (TY$):	$1030M
Average Unit Cost (TY$):	$188K
Full-rate production:	3QFY02

Prime Contractor

Block IV–Lockheed Martin

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Maneuver Control System (MCS) is the central command and control system for the maneuver elements in battalion through corps echelons. MCS consists of a network of computer workstations that integrate information from subordinate maneuver units with those from other Army Tactical Command and Control System battlefield functional areas, to create a joint common data base referred to as the Common Picture. Tactical information products, such as situation maps and reports, allow the display and manipulation of this information. MCS also provides a means to create, coordinate, and disseminate operational plans and orders. MCS' role in communicating battleplans, orders, and enemy and friendly situation reports make it a key component of the Army's ongoing effort to digitize the battlefield. As the primary command and control system from battalion to corps, MCS facilitates ***dominant maneuver, precision engagement, focused logistics,*** and ***full-dimensional protection.***

BACKGROUND INFORMATION

In 1980, the Army fielded the first MCS system with limited command, control, and communications capabilities to VII Corps in Europe. In 1982, the Army awarded a five-year contract to continue MCS development, and by 1986 MCS software had evolved to version 9, also fielded in Europe. In 1987, the Army performed post-deployment tests on version 9 in Germany. These tests led the Army Materiel System Analysis Activity to conclude that MCS did not exhibit adequate readiness for field use and further fielding should not occur until the problems were resolved. However, the Army awarded a second five-year contract that resulted in version 10 (which was fielded in October 1988.)

In 1988, the Army awarded a contract for the development of Block III software version 11. By 1993, the Army stopped development of software version 11 because of program slips, design flaws, and concerns with cost growth. The program was reorganized in April 1993, forming a team of contractors and government software experts to develop software version 12.01, using software segments salvaged from version 11.

In September 1996, the Army awarded a contract to initiate development of the next version of MCS. This effort, the Block IV MCS, is being developed by Lockheed Martin and will involve substantially different software, including the required Defense Information Infrastructure Common Operating Environment. The Army postponed IOT&E of Block III in November 1996 due to software deficiencies. In lieu of IOT&E, a Limited User Test was conducted from October-November 1996 to establish a Block III baseline and identify software problems requiring correction prior to IOT&E. These goals were achieved and DoD approved the Army's LRIP acquisition decision to procure computers for a training base operational assessment. This operational assessment, completed in May 1997, supported the Army's procurement of MCS for the training base, prior to successful completion of IOT&E.

IOT&E Army conducted the MCS Block III IOT&E in June 1998 during a Division Command Post Exercise at Ft. Hood, TX. This test included live Tactical Operations Centers at division, brigade, and battalion echelons equipped with 47 MCS workstations. This testing was adequate to confirm that the MCS program had achieved significant improvements in functionality since the last operational test event as well as demonstrated the potential to provide enhanced military capability in the future digital battlefield. However, there were significant test and system limitations present, and MCS performance was marginal for several critical measures.

The most critical limitation was the lack of realistic movement and dispersion for the Tactical Operations Centers. A number of experimental systems installed in the Tactical Operations Centers of the 4th Infantry Division, which served as the test unit, were inadequately integrated or hardened for field employment, particularly for the rigors of tactical displacement. Consequently, the Tactical Operations Centers did not deploy to field locations, did not disperse tactically, and did not displace in accordance with anticipated mission profiles. The experimental systems also impacted the maturity of the operational facilities, personnel, and networks supporting infrastructure. Based on these known limitations, the need for a follow-on operational event was identified when the MCS Test and Evaluation Master Plan was approved prior to June 1998 testing. New Tactical Operations Centers are under development, and may alleviate many of the current limitations, but they will not be available for examination until late FY00.

TEST & EVALUATION ACTIVITY

The evaluation of IOT&E represented the bulk of test and evaluation activity during this reporting period. In 3QFY99, when the DOT&E assessment concluded that MCS Block III was not effective or suitable, the Army decided to restructure the MCS program. Although still under development, the new test and evaluation strategy proposes to closely align the MCS Program schedule with that of the Force XXI Battle Command, Brigade and Below (FBCB2) Program.

TEST & EVALUATION ASSESSMENT

As tested during Initial Operational Test and Evaluation, MCS Block III is not operationally effective or suitable. The evaluation identified shortfalls in the areas of data base accuracy, interoperability, logistics supportability and user acceptance, especially at lower echelons (battalion) employed with greater operational realism. Additionally, employing MCS with the realistic tactical dispersion and displacement of a dynamic battlefield is expected to further degrade the operational performance. Since Initial Operational Test and Evaluation, MCS has participated in other operational test events, albeit with slightly different software. MCS was used in the FBCB2 Limited User Test (August 1998) and the All Source Analysis System Limited User Test (during the III Corps Warfighter Exercise, December 1998). The observations from these experiences are consistent with those from IOT&E. MCS Block IV software will require IOT&E, and a Milestone III should not be scheduled until after this event.

Future testing of MCS must be conducted with division-level Tactical Operation Center displacements, and provide sufficient data that demonstrates the ability of MCS to maintain the common picture for the maneuver force on a dynamic battlefield. The importance of movement for Tactical Operations Centers cannot be overstated, particularly with the growing emphasis that our potential adversaries are placing on disruption and destruction of our command-and-control capabilities. The resulting vulnerabilities against such threats have not been completely assessed. The scope of future MCS testing and the number of MCS workstations needed are under review as part of a major TEMP revision.

As with the FBCB2 Program, the MCS test and evaluation strategy requires sufficient numbers of MCS in order to equip the multiple test units that will participate in multiple test events; this will help to ensure that appropriate levels of training readiness are attained and sustained and also reduce the delays and costs associated with moving systems between test units. Under the new program strategy, approximately 400 MCS systems are being planned for testing in support of operational evaluations. These 400 systems will be a mix of two hardware variants (workstations and laptops), and the plan is to divide them among elements of the 4th Infantry Division, the 1st Cavalry Division, and III Corps. The III Corps participation is required because MCS is primarily a division and corps asset. The 1st Cavalry Division role is critical because it must be confirmed that MCS works well with both automated (FBCB2) and manual inputs since they will not possess FBCB2 at the time of testing. Finally, based on the performance problems observed in the battalion-level data bases during MCS Block III IOT&E, a greater number of battalions within each brigade will be examined in future events. Of the 400 MCS systems, most will be employed in multiple Digitization/FBCB2/MCS events, including the second MCS IOT&E in FY02.